

**CLAIMS**

1. Device for the elimination of incombustible particles from smoke and exhaust gases as well as ventilation air,

**characterized in**

that it comprises a first chamber (1) having an inlet (3) for smoke or exhaust gas or ventilation air,

that it further comprises a heatable combustion zone (6),

that it comprises a second chamber (2) having an inlet from said first chamber (1) for said gas, and

that it comprises an outlet (11,21) for collection of particles.

2. Device according to claim 1,

**characterized in**

that it further comprises means (5) for providing turbulence of said gas.

3. Device according to claim 1,

**characterized in**

that it further comprises means (5) for providing laminar flow to said gas.

4. Device according to claim 1,

**characterized in**

that it further comprises means (9) for adding atomized liquid, preferably water.

5. Device according to claim 1,

**characterized in**

that it comprises means (11, 16) for condensing said atomized liquid.

6. Device according to claim 1,

**characterized in**

that it further comprises an outlet (11, 21) for particle containing condensate.

7. Device according to claim 1,

**characterized in**

that the device further comprises a second inlet (4) into the first chamber for the addition of combustion aiding gas.

8. Device according to claim 1,

**characterized in**

that the device further comprises a heat exchanger (18) arranged in the second chamber (2) to heat exchange between gas and liquid.

9. Device according to claim 1,

**characterized in**

that the device further comprises a heat exchanger (10) arranged in the outlet (17) of the second chamber for heat exchange between gas and gas.

10. Device according to claim 1,

**characterized in**

that the device further comprises means (7) for the addition of energy to said heatable combustion zone (6).

11. Device according to claim 1,

**characterized in**

that the device comprises a means for atomizing a liquid.

12. Device according to claim 1,

**characterized in**

that the means for atomizing liquid comprises a means (8) for transfer of liquid into vapour form.

13. Device according to claim 1,

**characterized in**

that the means for separation of a condensate (11) comprises a rotatable helical centrifuge (16).

14. Device according to claim 1,

**characterized in**

that the device further comprises a gas outlet placed in the outlet of the second chamber, in which gas outlet there is an evacuation fan (13) to obtain a subpressure in said first and second chambers for the driving of said helical centrifuge (16).

15. Device according to claim 1,

**characterized in**

that the device comprises a tubular chamber (1) having an inlet part (3), which chamber is provided with a gas permeable sock (38) which allows passage of a substantially particle free gas to a second chamber (2),

that it comprises a brake plane (39) arranged in the first chamber (1) at the end facing away from the inlet part (3) to catch particles and in connection to said brake plane (39) there is a combustion zone (6) arranged and  
that it comprises an outlet (41) for the elimination of collected, non-combusted particles.

16. Device according to claim 1,

**characterized in**

that it comprises a temperature influenced opening arranged in the inlet part (3) to obtain a predetermined high smoke gas flow in the first chamber (1) to obtain a safe catch of the particles at the brake plane (39) of the device.

17. Device according to claim 1,

**characterized in**

that the device catches and makes the particles subject to a combustion, said particles having a particle size less than 1  $\mu\text{m}$ , preferably less than 0,5  $\mu\text{m}$ , more preferably less than 0,3  $\mu\text{m}$ , further more preferably less than 0,2  $\mu\text{m}$ .